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225. BY PROF. KERSHNER.—What is the locus of the angles of the inscribed squares of the respective segments of a circle when the chords or bases are parallel?

226. BY PROF. JOHNSON.—Find the algebraic equation whose roots are the real quantities found by giving integral values to k in

$$x = \cos \frac{2k\pi}{n},$$

n being a given integer. Also the equation whose solution is

$$x = \sin \frac{2k\pi}{n}.$$

227. BY A. S. HATHAWAY, CORNELL UNIV., ITHACA, N. Y.—If the equation $x^n + ax^{n-1} + \dots = 0$, whose roots are α, β , etc., be transformed into another, one of whose roots is 0, while the differences are unchanged, and then the transformed equation be divided by x ; and if this process be repeated $n-1$ times, prove that the product of the differences of the roots of the original equation is equal to the product of the absolute terms of the equations thus obtained.

228. BY A. MARTIN., M. A.—Integrate $dI = \log(a + \sqrt{x^2 + b^2})dx$.

229. BY CHAS. H. KUMMELL, DETROIT, MICH.—Evaluate

$$\int_{-x}^x \frac{\cos mx}{a+x} dx \text{ and } \int_{-x}^x \frac{\sin mx}{a+x} dx.$$

230. BY MARCUS BAKER, U. S. COAST SURVEY.— $ABCD$ is any tetrahedron. Through A pass a plane parallel to BCD , through B a plane parallel to CDA , through C a plane parallel to DAB and through D a plane parallel to ABC . A new tetrahedron is thus formed the volume of which call V' . Also let V equal the volume of the original tetrahedron.

Prove that $V' = 27V$.

ERRATA.

On page 127, line 8 from bottom, for "to D ", read, 45 miles to D .

" " " 4 " " for "maximum", read, minimum.

" " 130, line 5, for " 3×2 ", read, 3×-2 .

" " 135, first line of Table, for the imperfect figure in 2nd column, read, 9, and
for the imperfect figure in 6th column, read, 7.

" " 140, line 10, for " $+(u_2 + u_{-2})$ ", read, $-(u_2 + u_{-2})$.

" " 146, " 12, insert, fraction, at the beginning of the line.

" " " 13, for " $(a-1)a$ ", read, $(a+1)a$.

" " " 17, for " β ", as index of b , read, a .